AMENDMENTS TO THE CLAIMS

The listing of claims below replaces all prior versions, and listings, of claims:

1. (Original) A method for use in a mobile communications system having a plurality of cell segments, comprising:

communicating control and traffic signaling in a frame having a plurality of time slots in each cell segment, the time slots being time synchronized among the cell segments; and

transmitting control signaling in time slots adjacent time slots allocated as guard periods to protect the control signaling in a time slot of a first cell segment from interference by traffic signaling in another time slot of a neighboring cell segment.

2. (Original) The method of claim 1, wherein transmitting the control signaling includes transmitting the control signaling in every other time slot of each frame.

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3. (Original) The method of claim 1, wherein communicating the control and traffic signaling includes communicating the control signaling in odd time slots of each frame.

4. (Original) The method of claim 1, wherein each time frame includes time slots 0, 1, 2, 3, 4, 5, 6, and 7, and wherein the transmitting includes transmitting the control signaling in time slots 1, 3, and 5.

5. (Original) The method of claim 1, wherein each time frame includes time slots 0, 1, 2, 3, 4, 5, 6, and 7, and wherein the transmitting includes transmitting the control signaling in time slots 1, 3, 5, and 7.

6. (Original) The method of claim 1, wherein transmitting the control signaling includes transmitting one of a synchronization burst and a frequency correction burst.

7. (Original) A method for use in a mobile communications system having a plurality of cell segments, comprising:

defining a plurality of channels and a frame having a plurality of time slots;

providing a channel reuse pattern that is based on a plurality of channel frequencies and a plurality of time groups, wherein signaling is transmitted in different time slots of the frame in corresponding time groups; and

providing predetermined time slots as guard periods to reduce likelihood of interference of signaling due to overlap of time slots in neighboring cell segments.

8. (Original) The method of claim 7, wherein providing time slots as guard periods includes setting the time slots to be idle.

9. (Original) The method of claim 7, wherein the defining includes defining a frame having eight time slots.

10. (Original) The method of claim 9, further comprising allocating control signaling to be carried in odd time slots of each frame.

11. (Original) A method for use in a mobile communications system, comprising:

carrying control signaling in a multiframe that includes a plurality of frames, each frame including a plurality of time slots;

communicating control signaling in predetermined time slots of predetermined frames; and

communicating idle periods in time slots adjacent the predetermined time slots of the predetermined frames.

12. (Original) The method of claim 11, wherein each frame includes eight time slots, and wherein communicating the control signaling includes communicating the control signaling in odd time slots of the predetermined frames.

13. (Original) The method of claim 12, wherein communicating the idle periods includes communicating the idle periods in even time slots of the predetermined frames.

14. (Original) The method of claim 13, wherein each frame includes time slots 0, 1, 2, 3, 4, 5, 6, and 7, and wherein communicating the control signaling includes communicating the control signaling in time slots 1, 3, and 5, and communicating the idle periods includes communicating the idle periods in time slots 0, 2, and 4.

15. (Original) The method of claim 13, wherein each frame includes time slots 0, 1, 2, 3, 4, 5, 6, and 7, and wherein communicating the control signaling includes communicating the control signaling in time slots 1, 3, 5, and 7, and wherein communicating the idle periods includes communicating the idle periods in time slots 0, 2, 4, and 6.

16. (Original) The method of claim 11, further comprising communicating traffic in at least some of the frames other than the predetermined frames.

17. (Original) Apparatus for use in a mobile communications system having a plurality of cell segments, comprising:

an interface unit capable of communicating with the cell segments; and

a controller adapted to control communications of control and traffic signaling in a frame having a plurality of time slots in each cell segment, the time slots being synchronized among the cell segments, the controller further adapted to define guard periods each including at least one time slot to protect control signaling communicated in a time slot from interference due to overlap of time slots in neighboring cell segments.

18. (Original) The apparatus of claim 17, wherein the controller is capable of communicating packet data between a data network and a mobile unit in one of the cell segments.

19. (Original) The apparatus of claim 18, further comprising a second controller capable of communicating circuit-switched traffic between mobile units in the cell segments.

20. (Original) The apparatus of claim 17, wherein the controller is adapted to define a channel reuse pattern based on frequencies and time groups, control signaling being carried in different time slots of the frame in corresponding time groups.

21. (Original) A method for use in a mobile communications system having a plurality of cells each divided into three sectors, comprising:

allocating a channel frequency to each cell sector;

defining N time groups;

defining a frame having eight time slots;

providing an effective N/(3*N) channel reuse pattern that is based on the channel frequencies and the plurality of time groups, wherein signaling is carried in a different time slot of the frame in each time group; and

allocating predetermined time slots in the frame as guard periods to reduce likelihood of interference of signaling due to overlap of time slots between neighboring cell sectors.

22. (Original) A method for use in a mobile communications system having a plurality of cell segments, comprising:

measuring control signaling carried in one or more of a plurality of time slots of a frame in a first cell segment and in a neighboring cell segment; and

receiving control signaling in a first time slot adjacent a second time slot defined as part of a guard period to reduce likelihood of interference caused by overlap of time slots between the first cell segment and the neighboring cell segment.

23. (Original) The method of claim 22, wherein the measuring includes measuring control signaling in time slots that are synchronized between the first and neighboring cell segments.

24. (Original) A mobile unit for use in a mobile communications system, comprising:

a transceiver to transmit and receive control and traffic signaling carried in frames each having a plurality of time slots; and

a control unit adapted to receive control signaling carried in time slots adjacent idle time slots defined as guard periods.

25. (Original) An article including one or more machine-readable storage media containing instructions for controlling communications in a mobile communications system having a plurality of cell segments, the instructions when executed causing a controller to:

define a frame having a plurality of time slots;

synchronize time slots among the cell segments; and

allocate predetermined time slots as guard periods to reduce likelihood of interference of signaling due to overlap of time slots between neighboring cell segments.

26. (Original) The article of claim 25, wherein the one or more machine-readable storage media includes instructions that when executed further cause a controller to:

communicate over a plurality of channels with the frame; and

provide a channel reuse pattern that is based on a plurality of channel frequencies and a plurality of time groups, wherein signaling is transmitted in different time slots in corresponding time groups.

27. (Previously Presented) The method of claim 1, wherein transmitting control signaling in time slots adjacent time slots allocated as guard periods comprises transmitting control signaling in time slots adjacent entire time slots allocated as guard periods.

28. (Previously Presented) The method of claim 11, wherein communicating idle periods in time slots comprises communicating idle periods in entire time slots.

29. (New) The method of claim 1, wherein communicating the control and traffic signaling in the frame having the plurality of time slots comprises communicating the frame having the plurality of time slots in an uplink path.

30. (New) The method of claim 1, wherein communicating the control and traffic signaling in the frame having the plurality of time slots comprises communicating the frame having the plurality of time slots in a downlink path.

31. (New) The apparatus of claim 17, wherein the controller is adapted to control communications of control and traffic signaling in the frame in an uplink path.

32. (New) The apparatus of claim 17, wherein the controller is adapted to control communications of control and traffic signaling in the frame in a downlink path.